

FIRE PROTECTION DESIGN CHECKLIST

PURPOSE

This checklist is to aide various designers (Architects, Civil Engineers, Electrical Engineers, Fire Protection Engineers, Mechanical Engineers) in developing necessary requirements for fire protection design. Building construction, life safety, automatic fire sprinkler system, and fire alarm and detection system requirements are covered in this checklist.

REFERENCES

MILITARY HANDBOOK 1008C

INTERNATIONAL BUILDING CODE (IBC)

NATIONAL FIRE CODES (NFPA)

CONTRACT SPECIFICATIONS

INTERNATIONAL PLUMBING CODE (IPC)

BUILDING OCCUPANCY CLASSIFICATION

Occupancy classification per IBC _____

Occupancy classification per NFPA 101 _____

Is building mixed occupancy? Yes _____ No _____

If building is mixed occupancy, required separation per IBC _____

Building type of construction per IBC _____

Maximum allowed floor area per IBC _____

Maximum allowed stories per IBC _____

Actual building floor area _____

Actual building stories _____

Are height/area modifications per IBC being applied? Yes _____ No _____

Height modification _____

Area modification _____

Notes _____

LIFE SAFETY

Occupancy per NFPA 101 _____

Is building mixed Occupancy? Yes _____ No _____

Occupant load _____

Are there access-controlled egress doors? Yes _____ No _____

Are there delayed egress locks on exit doors? Yes _____ No _____

Number of stories in building _____

Number of stairs (if required) _____

Number of exits _____

Are there any dead end corridors? Yes _____ No _____ Length _____

Length of common path of travel _____

Travel distance to exits _____

Exit discharge from exits _____

Is emergency lighting provided? Yes _____ No _____

Are exits properly marked per NFPA 101 section 7-10? Yes _____ No _____

Type of interior finishes Class A _____ Class B _____ Class C _____

Type of interior floor finishes Class I _____ Class II _____

Is a fire alarm detection system required? Yes _____ No _____

Is an automatic fire sprinkler system required? Yes _____ No _____

Are portable fire extinguishers required? Yes _____ No _____

Are corridors required to be rated? Yes _____ No _____ Rating _____

Are there any hazardous areas as defined by NFPA 101? Yes _____ No _____

Hazardous areas _____

Are there any elevators, escalators or conveyors? Yes _____ No _____ Type _____

Notes _____

AUTOMATIC FIRE SPRINKLER SYSTEMS

Is a fire sprinkler system required per NFPA 101?	Yes_____	No_____
Is the building over 15,000 square feet in area?	Yes_____	No_____
Is the building of military importance in its operation?	Yes_____	No_____
Does the building contain direct war fighting assets?	Yes_____	No_____
Is building of a technical or industrial type facility?	Yes_____	No_____
Does the building contain significant amounts of critical equipment?	Yes_____	No_____
Is the building 4 or more stories in height?	Yes_____	No_____
Does building and content value exceed \$2.5 million?	Yes_____	No_____
Is the building a windowless structure?	Yes_____	No_____
Is the building an underground structure?	Yes_____	No_____
Is the building a commissary or exchange over 8000 square feet?	Yes_____	No_____
Is the building multistory with handicap accessibility?	Yes_____	No_____
Is the building a club, or MWR type facility?	Yes_____	No_____
Is the building a child development center?	Yes_____	No_____
Is building constructed of type III, IV or V and over 2 stories?	Yes_____	No_____
Does the post fire marshal request a fire sprinkler system?	Yes_____	No_____

AN ANSWER OF YES TO ANY OF THE ABOVE QUESTIONS WILL REQUIRE AN AUTOMATIC FIRE SPRINKLER SYSTEM.

Hazard occupancy classification per NFPA 13 Chapter 2_____

Will a wet pipe system be used? Yes_____ No_____

Will a dry pipe system be used? Yes_____ No_____

Will a preaction system be used? Yes_____ No_____

Will a deluge system be used? Yes_____ No_____

Water supply static pressure _____

Water supply residual pressure _____ Water supply residual flow _____

Date of water flow data _____ Water flow testing agency _____

Will a fire pump be used? Yes_____ No_____

AUTOMATIC FIRE SPRINKLER SYSTEMS

For hazard occupancies rated light hazard, will quick response type sprinklers be used? Yes___ No___

Temperature rating of sprinklers Ordinary___ Intermediate___ High___

Will corrosion-resistant sprinklers be used? Yes___ No___

Will sprinkler guards be used? Yes___ No___

Will aboveground pipe be black steel? Yes___ No___

Will aboveground pipe be galvanized steel? Yes___ No___

Will aboveground pipe be copper? Yes___ No___

Will aboveground pipe be CPVC? Yes___ No___

Will belowground pipe be ductile iron? Yes___ No___

Is underground service piping a minimum 6 inches for combination service? Yes___ No___

Is Post Indicating Valve free standing? Yes___ No___

Is Post Indicating Valve wall mounted? Yes___ No___

Is underground service buried a minimum of 3 feet? Yes___ No___

Is fire department connection located for proper fire department access? Yes___ No___

Will an alarm check valve be used? Yes___ No___

Will a paddle-type water flow alarm be used? Yes___ No___

Will local alarm be a water motor gong? Yes___ No___

Will an electric gong be used for the local alarm? Yes___ No___

Location of system drain_____

For storage occupancies, will in-rack sprinklers be used? Yes___ No___

Is sprinkler system wet pipe for ESFR sprinklers? Yes___ No___

Will the pipe schedule design method be used? Yes___ No___

Will the area/density design method be used? Yes___ No___

Design Area___ Design Density___ Hose Allowance___

Design Area___ Design Density___ Hose Allowance___

Design Area___ Design Density___ Hose Allowance___

Will the room design method be used? Yes___ No___

AUTOMATIC FIRE SPRINKLER SYSTEMS

Is backflow protection provided per the International Plumbing Code? Yes_____ No_____

Are sprinkler heads centered in acoustical tile? Yes_____ No_____

Is inspector's test connection location shown on plans? Yes_____ No_____

For hydraulic elevators, is sprinkler provided in pit? Yes_____ No_____

For dry pipe systems, approximate pipe volume_____

Notes_____

FIRE PUMPS

Is fire pump layout shown on plans? Yes_____ No_____

Are fire pump controllers readily accessible? Yes_____ No_____

Is fire pump orientation correct for right hand (clockwise) rotation? Yes_____ No_____

Pump drive Electric_____ Diesel_____

Pump size_____

Electric motor rating_____

Diesel engine rating_____

Number and size of hose valves_____

Jockey pump size_____

STANDPIPES

Is a standpipe required by NFPA 101? Yes_____ No_____

Is the building over 4 stories in height? Yes_____ No_____

AN ANSWER OF YES TO THE ABOVE QUESTIONS WILL REQUIRE A STANDPIPE.

Is standpipe a class I system? Yes_____ No_____

Wet system_____ Dry System_____ Fire Department Connection Only_____

FIRE ALARM/DETECTION SYSTEM

Is a fire alarm system required by NFPA 101? Yes_____ No_____

Is there a fire sprinkler system? Yes_____ No_____

Is the occupant load greater than 200 people? Yes_____ No_____

Is the building multistory with 20 people above exit level? Yes_____ No_____

Is the building unaccompanied housing? Yes_____ No_____

Does the post fire marshal request an alarm system? Yes_____ No_____

AN ANSWER OF YES TO ANY OF THE QUESTIONS ABOVE WILL REQUIRE A FIRE ALARM/DETECTION SYSTEM.

Is fire alarm system an addressable type? Yes_____ No_____

Is fire alarm system a direct current loop type? Yes_____ No_____

IDC circuits Class_____ Style_____

SLC circuits Class_____ Style_____

NAC circuits Class_____ Style_____

Alarm transceiver_____

Manual pull stations Single action_____ Double action_____

Are manual pull stations provided at each exit? Yes_____ No_____

Smoke detectors Ionization_____ Photoelectric_____ Air-Sampling_____

Projected Beam_____ Duct_____ Single Station_____

Are duct smoke detectors provided in air handling units over 2,000CFM? Yes_____ No_____

Heat Detectors Fixed-Temperature_____Rate-Of-Rise_____ Combination_____

Rate Compensating_____

Flame Detectors Infrared_____ Ultraviolet_____ Combination_____

Notification Appliances Audible_____ Visual_____ Combination_____

Audible db rating_____ Horn_____ Bell_____ Chimes_____

Visual Candela rating_____ Synchronized_____

Is there emergency voice/alarm communication? Yes_____ No_____

Are there waterflow (sprinkler) alarm devices? Yes_____ No_____

FIRE ALARM/DETECTION SYSTEM

Are there supervisory (tamper) switches?	Yes_____	No_____
Are there magnetic door holders?	Yes_____	No_____
Is there a requirement for a fire command center?	Yes_____	No_____
For elevators, are there smoke detectors for recall?	Yes_____	No_____
For elevators, is there a heat detector in machine room?	Yes_____	No_____
Is there a smoke/heat detector located by alarm panel?	Yes_____	No_____
Is a remote annunciator required for building?	Yes_____	No_____

Notes_____

SITE/CIVIL

Are fire hydrants located within 350 feet of the building?	Yes_____	No_____
Is there a fire hydrant located within 150 feet of a FDC?	Yes_____	No_____
Are underground fire mains looped around building?	Yes_____	No_____
Is a water storage tank provided for building?	Yes_____	No_____
Is there access to two sides of building by fire department?	Yes_____	No_____
Are drives and parking lots marked with fire lanes?	Yes_____	No_____

Notes_____
